

WHAT IS CLAIMED IS:

1. An illumination apparatus comprising:  
a light source; and  
5 a condensing unit that condenses light emitted from the light source toward the optical axis;  
wherein the condensing unit includes  
a negative lens portion that is arranged on a front side of the apparatus and has negative refractive power, a positive  
10 lens portion that is arranged near the optical axis and has positive refractive power, and a reflection portion that reflects emitted light that is not directed to the positive lens portion toward the optical axis.
- 15 2. The illumination apparatus according to claim 1,  
wherein the condensing unit is configured such that it condenses the light emitted from the light source to a predetermined focus point; and  
wherein the negative lens portion is positioned  
20 closer to the light source than the focus point.
3. The illumination apparatus according to claim 1,  
wherein negative lens portion is shaped such that its  
length in the vertical direction of the apparatus is  
25 smaller than a maximum length of the condensing unit in the vertical direction of the apparatus.

4. The illumination apparatus according to claim 3,  
wherein the negative lens portion and the condensing  
unit are formed such that the following expression is  
satisfied:

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$$0.4 \leq D/A \leq 0.8$$

wherein D is the maximum length of negative lens portion in  
the vertical direction of the apparatus, and

A is the maximum length of the condensing unit in the  
vertical direction of the apparatus.

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5. The illumination apparatus according to claim 1,  
wherein the negative lens portion and the condensing  
unit are formed such that the following expression is  
satisfied:

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$$0.1 \leq L/B \leq 0.5$$

wherein L is the distance in optical axis direction  
between a maximum aperture position of the negative lens  
and a maximum aperture position of the condensing lens, and

B is the distance in optical axis direction between a  
20 maximum aperture position of the condensing unit and the  
light source center.

6. The illumination apparatus according to claim 1,  
comprising an optical member including the positive  
25 lens portion, the reflection portion and the negative lens  
portion.

7. The illumination apparatus according to claim 1,  
comprising:

a first optical member including the positive lens  
portion and the reflection portion; and

5 a second optical member including the negative lens  
portion.

8. The illumination apparatus according to claim 7,

wherein an optical irradiation angle can be changed  
10 by changing the distance between the first optical member  
and the second optical member.

9. The illumination apparatus according to claim 1,

wherein the reflection portion comprises a total  
15 reflection surface configured as a mirror surface.

10. The illumination apparatus according to claim 1,

wherein the negative lens portion is made of a lens  
having a concave continuous surface or of a cylindrical  
20 lens.

11. The illumination apparatus according to claim 1,

further comprising a reflection screen that is  
arranged to the rear of the apparatus behind the light  
25 source and reflects light emitted from the light source to  
the front of the apparatus;

wherein the reflection screen has a curved surface

that is substantially concentric to the light source center.

12. The illumination apparatus according to claim 1,  
wherein the light source is a straight tube-shaped  
5 flashlight discharge tube extending in width direction of  
the apparatus.

13. A camera comprising an illumination apparatus  
according to claim 1.

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